Unit one
Lesson one
Motion In One Direction

I) Complete the following statements :

1. The …….. is defined as the speed of moving object relative to the observer .
2. The total distance that a moving object covers divided by the total time taken to cover this distance is known as ……..
3. The uniform speed of a car is 90 km/ hour so , its speed equals …… m/s .
4. When the average speed of an object equals the uniform speed in this case the motion represents …… motion .
5. The relative speed of moving object depends on ……..

II) Write the scientific term :

1. The distance that a moving object covers within a unit time . [……..]
2. The speed in which the object moves to cover equal distances at equal periods of time . [……..]
3. The speed of moving object relative to the observer . [……..]
4. The change in the position of a body by time relative to the position of another body . [……..]
5. The simplest type of motion . [……...]

III) Put (√) or (×) then correct what is wrong :

1. When a moving object covers equal distances at equal periods of time so it moves with uniform acceleration ( )
2. A car moves with regular speed covers 500 meters in 20 sec. its speed is 200 m/s
3. Average speed is the speed of a moving object relative to the observer ( )
4. Measuring the relative speed for a moving car depends on the presence of speedometer which determines the speed value. ( )
5. The relative speed of two moving bodies in the same direction equals the sum of their speed . ( )

IV) Give reasons for :

1. The moving car seems stable to an observer moves with the same speed and direction .

……

2. The uniform speed of a car can't be obtained practically .

……

3. The motion of the trains can be considered as a motion in one direction .

……

V) Define each of the following :

(1) Speed

……

(2) Irregular speed

……

VI) Problem

A runner covered a distance of100 meters to the north in 30 seconds , then 50 meters to the east in 10 seconds , then 100 meters to the south in 15 seconds , then he came back again to the starting point in 5 seconds . calculate .

1. The total distance covered by the runner .

……..

2. The average speed of the runner .

…….

Lesson Two

Graphic Representation of

Moving in a straight line

I) Complete :

1. The value of change of an object's speed in one second is ……..
2. When an object moves with decelerating motion this means that its ……. speed is greater than its ……. Speed .
3. For a car moves with regular speed , the ratio d / t is ……
4. The ratio between the final speed and initial speed for an object moves with accelerating motion is …….. one .

II) Write the scientific term :

1. The graph for a regular motion at uniform speed which is represented by a straight line parallel to the (×) axis . [……..…….]
2. The change of the object's speed by equal values through equal period of time . [……..]
3. The graph for a regular motion at uniform speed which is represented by a straight line passes through – the origin point . [……..]

III) What's the difference between :

1. Speed – acceleration (Definition – measuring unit)

…….

…….

2. The graphical relation (distance – time) and the graphical relation (speed – time) for regular motion in a straight line at constant speed .

……

……

……

IV) Problem :

- A racing car starts moving from the rest . Then its speed increased to 900 m/s through 5 second .

Calculate the acceleration of the moving car .

……..

……..

- A car moves at speed 100 km / h if the driver reduces its speed by a rate of -2km / h^2 calculate the car's speed after half hour .

……..

……..

Lesson three
Physical Quantities
Scalars and vectors

I) Complete the following :

1. The …… is a vector quantity while …….. is a scalar quantity .
2. …… is the covered distance in a constant direction and is a vector quantity .
3. The vector quantity that identifies it a accurately and is necessary to identify its ……. as well as …….
4. Average velocity = $\frac{\text{.....}}{\text{.....}}$

II) What's the difference between :

- Distance and displacement (Definition only) .

……

……

- Scalar quantity and vector quantity (Definition and Examples) .

……

……

III) What is meant by :

1. The <u>displacement</u> of on object is 60 meters in east direction .

……

2. The average velocity of a moving car is 80 km / h

……

IV) When dose the following cases happen :

1. The displacement covered by a moving body equals zero .

……

2. The distance and displacement of a moving object are equal .

……..

V) Problem :

1. A tennis ball falls from a height of 30 m . then it rebounds from the ground to upward a distance of 6 m . find the distance covered by the ball and the displacement .

……..

……

……

2. If a body starts its motion from point (a) covered 20 meters northward till point (b) within 20 seconds, then 50 meters eastward till point (c) within 10 seconds then 20 meters southward till point (d) within 5 seconds calculate the average velocity .

……

……

3. A body moves in a circular path , starting from the point A to B to C to D and returns back to the start point (A) if the circumference of the path is 200 meters and the body covered the distance (ABC) within 10 seconds . then it covered the distance (CDA) within 20 seconds calculate :

1) The total distance the body moved .

……

2) The average speed of the body .

……

3) The displacement .

……

VI) Give reasons for :

1. Velocity and acceleration are vector quantities . while distance and length are scalar quantities .

……..

……..

2. Pilots take in consideration the velocity of the wind .

……

……

VII) Write the scientific term :

1. The length of shortest straight line between primary position and final position .

[……]

2. The rate of change of displacement . [……]
3. The vector quantity which is measured . in m/s^2 . [……]

Unit Two

Lesson one

Mirrors

I) Write the scientific term :

1. The rebounding of light to the same side when it strikes a reflecting surface .
[……..…]
2. The angle between the incident light ray and the perpendicular line on the reflecting surface . [……..]
3. Angle of incidence = Angle of reflection . […….……]
4. The point of collection of parallel light rays to the principal axis of the concave mirror . [……..]
5. Twice the focal length of a spherical mirror . [……..……]

II) Put (√) or (×) in front of the following statements and correct the false ones

1. The distance between the object and a plane mirror is more than the distance between the plane mirror and the image . ( )
2. When the angle between the incident ray and the plane mirror surface is 60º , so the angle of reflection is 50º . ( )
3. The formed image for a body put in front of a convex mirror is virtual . inverted and small . ( )
4. A spherical mirror of diameter equals 14 cm , its focal length is 6 cm .( )
5. The focus is the point that is in the middle of the reflective surface of the mirror . ( )

III) Give reasons for :

1. Concave mirror is used in cooking by using solar energy .

……

……

2. A convex mirror is put at the left side of the driver of the car .

……

……

3. The incident light ray falling perpendicular on a reflecting surface reflects on itself

……

……

4. The word AMBULANCE is written in a converted way on the ambulance car.

……

……

IV) Show by drawing the path and the direction of rays in the following cases :

- An object in front of a concave mirror at a distance less than its focal length (Determine the properties of the formed) image .

……

……

……

- The image that is formed by the convex mirror .

……

……

……

- An object in front of a concave mirror at a distance of 7 cm . Knowing that its focal length is 5 cm .

……

……

……

V) An object is put at a distance 20 cm from a mirror the image is formed on a screen and has a length equal to the object .

(1) What is the type of the mirror .

……

(2) Calculate the focal length of the mirror .

……

(3) Draw the path rays that shows the formation of this image .

……

……

Lesson (2)

Lenses

I) Complete the following statements :

1. A point inside the lens placed on the principal axis in the mid distance between its faces is …… .
2. The radius of the convex lens = ……. Its focal length .
3. The long sighted person needs a medical eye glasses with ……. Lenses .
4. The optical piece that forms an equal . inverted image of the body is the …….

II) Write the scientific term :

1. The line joining between the two centers of curvature of the lens and passing through the optical center . [ ]
2. A vision defect results due to the formation of the image in front of retina . [ ]
3. The lenses that are used instead of glasses and can stick to the eye cornea . [ ]
4. A disease infects the eye lens , so it becomes dark . [ ]

III) Give reasons for :

1. The convex lens has two foci , but the concave mirror has one focus .

……

……

2. The short – sightedness is treated by using a concave lens .

……

……

3. It’s impossible to obtain a real image by using a concave lens .

……

……..

4. the convex lens is called converging lens while the concave lens is called diverging lens .

……

……

IV) What happens when :

1. A light ray is incident parallel to the principal axis of the convex lens .

……

……

2. The eye lens is too convex .

……..

3. A light ray passes through the optical center of the lens .

……

……

V) Define each of the following :

1. The lens .

……

2. The center of curvature of the lens face .

……

3. Short sight defect .

……

VI) Problem :

1. A concave lens has a focal length equals 3 cm . An object is placed at a distance of 4 cm . From the lens , determine the position of the formed mage and its properties by drawing the light rays .

……

……

……

2. A convex lens . its focal length equals 5 cm. An object is placed at a distance 7 cm from the lens , Determine the position of the formed image and its properties by drawing only two light rays .

……

……

……

3. Mention the position and properties of the image formed of an object is put at a distance less than the focal length .

……

……

……

4. A convex lens with focal length of 20 cm an object was placed at a distance of 40 cm from the lens . Assign the distance of object's image from the lens and mention its properties .

……

……

……

Unit Three

Lesson 1

The universe

I) Write the scientific term :

1. The sun and eight planets revolving around it . [……]
2. It's located in one of the spiral arms of the Milky way galaxy .

[…….……]

3.It contains all the stars we see at night in the sky . [……..]
4. The distance that is covered by light in one year . [……..]

II) The scientists have different theories about the history of the universe some of them believe in the opened universe theory . others believe in the closed universe theory .

- Mention the opinions of both .

……

……

……

III) Give reasons for :

1. Our galaxy is called milky way galaxy .

……

……

2. The continuous expansion of the space .

……

……

3. The gravity has important role in cosmogony of the universe .

……

……

IV) Complete the following statements :

1. Each galaxy has a distinctive shape according to ……. and ……. of the groups of starts in universe .
2. The solar system is located in one of the spiral arms of ……. galaxy .
3. Within minutes of the Big Bang , the atomic particles merged together producing …… and …….. .
4. The solar system contains a number of …… orbit the sun .
5. The sun takes about ……. million years to complete one rotation around the center of the galaxy .
6. Bigger units of the universe are …….

Lesson 2

The solar system

I) Complete the following :

1. The force of attraction between two objects is …… proportional to the product of their masses and is …… proportional to the square of the distance between them .
2. The …….. rotates around the earth in a fixed orbit and …… rotates around the sun once every earthly day .
3. The scientist who established …… theory is laplace , but the scientist who established the modern theory of the world is …….
4. The longest day is on …….. where as the shortest day is on ……
5. ……..rotates around the sun once every 12 earthly years .

II) Write the scientific term :

1. The time taken by the planet to complete one rotation around its axis .
   [……..……]
2. A flat gaseous round disk that formed the solar system . [……..]
3. The force that keeps the continuity of the planets rotation in their orbits around the sun . [……..……..]
4. The planet that has the shortest year on its surface . [……]

III) Correct the underline words :

1. The modern theory for formation of the solar system according to <u>laplace</u> is due to explosion of a star rotating around the sun .
2. The time of revolving <u>venus</u> planet around its axis is one Earthly day .

3. The difference of day length from a planet to another is due to the speed of the planet rotation around the sun .

IV) What would happen ……?

1. When the distance between a planet and the sun increases .

……

……

2. Due to the difference in speed of planet rotation around its axis .

……

……

Explain the evolution of the solar system as the vision of the French scientist laplace

……

……

.

Unit Four

Lesson 1

Cell Division

I) Put (√) or (×) in front of the following statements and correct the false ones

1. The chromosome consists of a nucleic acid called RNA and protein. ( )
2. In the mitotic division , the spindle fibers are formed during interphase and disappear in anaphase . ( )
3. The spindle fibers are formed in the plant cell from the centrosome . ( )
4. The nucleolus disappears through telophase of mitosis . ( )
5. Crossing over phenomenon occurs in the anaphase of first meiosis. ( )

II) Give reason for :

1. crossing over is the source of genetic variation between members of the same species .

……

……

2. The nucleus is the part of the cell division .

……

……

3. Cellular division begins with inter phase .

……

……

III) Write the scientific term :

1. The point of connection of two chromatids together . […….....]
2. It contributes in genes exchanging between the chromosome's chromatids and distributing them in the gametes . […….]

3. A phase where some processes occur upon which formation of two cells each of them contains chromosomes that equal in number with the parental cell .

[……..…]

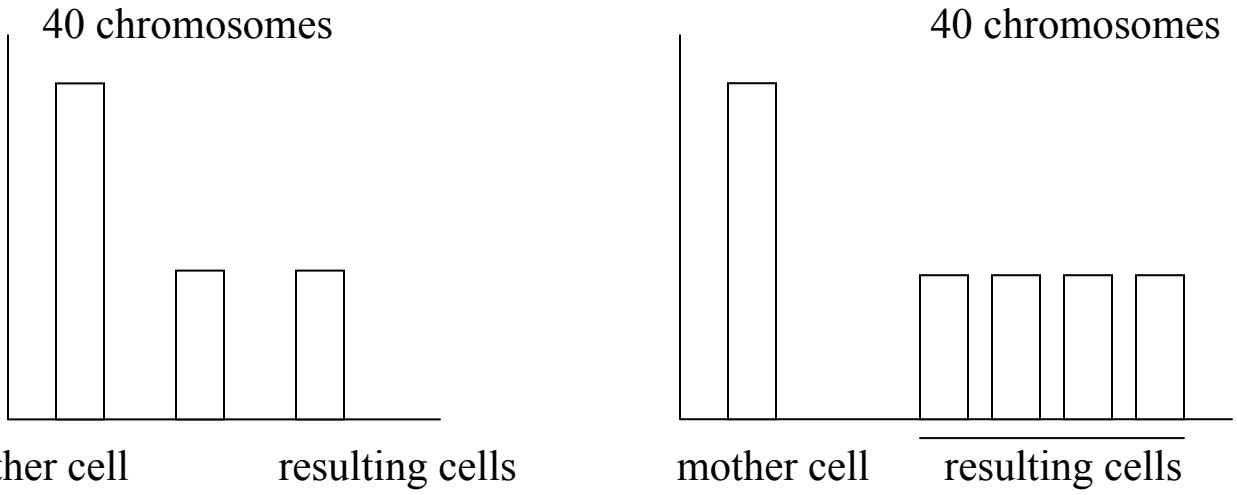
IV) If you have a plant that its cells have 20 chromosomes .

What is the number of chromosomes in the following cells ?

(1) leaf (2) ovum (3) pollen

(4) fertilized ovum (5) stem (6) zygote (7) root

V) From the following graphs answer the following questions



- Which graph represents mitosis .

…….

- Which graph represents meiosis .

…….

- What is the no. of the chromosomes in the resulting cells in each division .

……

……

Lesson 2

Sexual and Asexual Reproduction

I) Give reasons for :

1. Spore propagation is a type of asexual reproduction which is common in some fungi such as bread mould and mushroom .

……

……

2. The zygote has the same no . of chromosomes of cells of parental organism .

……

……

3. Starfish continues alive even a part of its body is cut .

……

……

4. Sexual reproduction is a source of the genetic variation .

……

……

II) Mention the importance of :

1. The sexual reproduction in concerning of the genetic structure .

……

2. Vegetative reproduction .

……

III) What would happen :

1. separating a starfish arm , while it contains a part of the central disc .

……

……

2. Fusion of sperm with an ovum .

……

……

IV)How does each of the following organisms reproduces (if it is asexually reproduction mention its type .

1- sponge …… 2- man ……..

3- Bacteria……. 4- Hydra ……..

5- Bread mould ……. 6- Paramecium ……

7- starfish ……..

8- Plants (with no need of seeds) …….